The Incorrect Use of Artificial Intelligence Applications among University Students and their Impact on the Credibility of Learning

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Abstract

This study aims to explore the level of using artificial intelligence applications among university students and their impact on the credibility of e-learning. The study used the descriptive method because it is suitable for the study. The study included a sample of 94 Jordanian university students, who were selected by stratified random method. The study used a questionnaire of 40 items as the research instrument to determine the level of the use of artificial intelligence technology and distance education in distorting the contemporary educational landscape. The results showed that universities try to limit the incorrect use of AI applications among students by using specific detection tools. The students showed that their universities have strict rules and regulations regarding the use of AI tools in their studies. Therefore, there were low estimations from the students on the large incorrect usage of AI tools. The results also revealed that gender and the specialization of the student do not affect their views toward the incorrect use of AI tools in their education, whether face-to-face education or online education.

Keywords: Artificial intelligence, e-learning, face-to-face education, incorrect use, university students.

1. Introduction

Artificial intelligence technologies have greatly affected life, and although this impact varied from one field to another, there are radical changes that have been imposed on the lifestyle and methods of adapting to the data produced by the Industrial Revolution (Lu et al., 2020). The educational and learning systems have received the largest share in the extent of being affected by this development, which is due to the technological passion that has dominated the current generations, and made their education methods at the present in need of continuous development. Interest in distance education techniques has increased, and work has become more serious to develop and improve their services, especially in these times (Vieira et al., 2019). Artificial

intelligence provides many tools that can be used in education to save time and effort, while distance education allows students to face special challenges in classroom education.

These technical innovations have helped develop contemporary education and brought about a qualitative shift in educational goals and outcomes, especially since the quality standards in educational institutions have radically transformed according to the new data produced by technical innovations, which requires increasing attention in educational programs at various educational levels (Muniasamy & Alasiry, 2020). This was done by benefiting from artificial intelligence and distance learning technologies in developing educational experiences obtaining outputs capable of correct adaptation to these technologies, and avoiding future problems that may be caused by the spread of this technology without controls or laws regulating work (Alnaqbi & Yassin, 2021). Most countries have begun to develop plans to benefit from the technology. Jordan has developed a national development plan for Jordan's Education Vision to benefit from technology in preparing creative human capital by providing advanced infrastructure. In the same direction, the Kingdom of Saudi Arabia is putting several pillars of its vision for the Kingdom into motion in 2030 by changing the dynamics of teaching and expanding education sectors. Egypt also launched a long-term strategic plan that seeks to provide the requirements for digital transformation in Egypt's Vision 2030. The Syrian News Agency announced Syria's announcement of a digital transformation strategy extending until 2030, and the need to prepare the cadres that will help achieve that vision (Ahmad et al., 2023; Ragheb et al., 2022).

In the face of these plans, it must be noted that not setting strict laws when activating these strategies and plans. Being satisfied with the benefits without taking into account the dire consequences that these technologies may produce in distorting the contemporary educational landscape and the quality of educational outcomes at present or in the future will negatively affect contemporary education in all its dimensions (Veeramanickam & Ramesh, 2022). Therefore, this study focuses on the use of artificial intelligence technology and distance education in distorting the contemporary educational scene. Applications based on artificial intelligence provide the opportunity for students to study at times that suit them, and students can also obtain feedback from teachers during regular study times. Artificial intelligence applications also provide students with global access to learning 24 hours a day, 7 days a week, and it is noted that any student can learn everything at their own pace and ability without consulting a teacher, and students from all over the world can access high-quality education without incurring travel and living expenses (Nagro, 2021).

Artificial intelligence represents a modern technology whose importance has emerged from the fact that it mimics human intelligence. The idea of artificial intelligence was based on creating hardware and computer programs capable of thinking, imagining, and making decisions in the way the human brain works (Jia et al., 2022). The importance of artificial intelligence comes from it being a technical science that works on studying methods and techniques, developing theories, simulation, and application systems, and therefore receiving wide attention in education. It has invaded a wide area of computer-based learning systems and has been able to automate, improve, and develop the educational process. Also, programs based on artificial intelligence are characterized by modernity. Flexibility increases the opportunities for self-

learning for students, makes them active in the educational process and not passive recipients, supports innovation and creativity at work, helps secure educational outcomes that are more consistent with the established objectives, and is characterized by accuracy in setting standards (Nagro, 2021).

1.1. Problem statement

The education process, with its various elements, is the cornerstone of achieving the scientific renaissance of any society, and therefore interest in developing this process and improving the efficiency of its outcomes is a national demand in all countries of the world, and we must constantly search for everything that can be used to advance education and make it more efficient and effective. By benefiting from development in the technical and scientific field, which has greatly imposed itself in all areas of life. With the emergence of modern trends towards digital transformation and the use of technology in education, the impact of the use of modern technologies and innovations on the field of education and the qualitative outputs that we strive to develop their scientific attainments and level have to be known. All educational institutions, without exception, aim at preparing scientifically strong generations with science and knowledge and are interested in preparing learners with theoretical knowledge and scientific skills that will enable them to learn highly efficiently. Here, it must be noted that the most important role of educational institutions lies in helping learners to use technology consciously and carefully, by preparing a learner who can understand innovative technological concepts and who has the required level of technological awareness to adapt to the recent emergence of modern educational techniques.

Some learners have attempted to use artificial intelligence and tele-education techniques in a manner that has begun to threaten the credibility of teaching work. Some unconscious practices have begun to undermine the objectivity of teaching and the achievement of the lofty goals and objectives that it seeks to achieve, especially since such use is available without any controls, rules, or laws governing the use of these techniques in teaching and regulating their use to develop the intellectual abilities and thinking processes of the learner. Educators use artificial intelligence and tele-education techniques in electronic impersonation and forgery. Educators resort to electronic fraud by translating and stealing texts without citing their sources and using artificial intelligence tools to complete their academic work. On the other hand, remote learning outputs may lack some skills and expertise, particularly the lack of a real social environment. Therefore, the objective of this study is to explore the level of using artificial intelligence applications among university students and their impact on the credibility of e-learning.

1.2. Questions of the study

- What is the level of incorrect use of artificial intelligence applications in e-learning among university students in Jordan?

- Are there any statistically significant differences between the scores of students' answers about the role of incorrect employment of artificial intelligence technology and distance learning according to the variables of gender and specialization?

1.3. Significance of the study

This study points out the real danger targeting the contemporary educational scene, which is reliance on machines and eliminating the human role. The study focuses on reducing the value of educational outcomes in the current era as a result of some wrong practices. The research may draw attention to spreading awareness about the values of academic integrity and the principles of respect for intellectual property. It is hoped that the focus will be on the performance aspect when adopting distance education and artificial intelligence technologies.

1.4. Limitations

1. Objective limits: The role of the incorrect use of artificial intelligence and distance learning in distorting the contemporary educational landscape.

2. Spatial limits: Jordanian universities.

3. Timelines: This research was implemented during May and April of the year 2023.

4. Human limits: The research was applied to a sample of 94 Jordanian university students.

2. Literature Review

Artificial intelligence and e-learning refer to the products of technology, as they are both the results of the era of technological and cognitive development and each has its distinctive characteristics. Distance education refers to a type of education, while the concept of artificial intelligence refers to the technologies applied in this type of education and other fields (Alnaqbi, 2022). Artificial intelligence is a technology that seeks to simulate human behaviour and act like humans. Artificial intelligence can be defined as one of the most important applications of computer science that works to perform tasks that mimic the human mind, such as the ability to think, learn, and solve problems (Nuseir et al., 2021). The concept of distance education refers to education based on modern technology to provide information in interactive scientific methods that achieve enjoyment and benefit for all learners, and in a way that helps stimulate thinking and creativity. The relationship between artificial intelligence applications and distance education is clear in our current era. It is linked to all the applications provided by artificial intelligence software, such as distinctive technical environments that can process a large amount of information in a short time, diagnose student learning, identify strengths and weaknesses, and provide learning that suits all learners (Aljarrah et al., 2021). There are many services that artificial intelligence can provide in the service of distance education and improving this type of learning.

Artificial intelligence applications have several benefits for distance education. These benefits are evident in the fact that artificial intelligence works to increase the fun and attractiveness of education, and artificial intelligence tools and applications work to provide renewed educational curricula that are easy to develop and modify, which contributes to improving learning objectives in line with the data (Abdelmagid et al., 2024). In emergencies, artificial intelligence technology also allows for more effective and interactive education, as the learner participates, in dialogues, researches, gives orders, and directly tests the ideas that appear in his mind. This develops his

mental abilities and thinking skills and encourages him to be creative and innovative. That is, artificial intelligence contributes significantly to the development of distance education and avoiding the problems of traditional classroom education, such as the large number of students and crowding in the classroom, by creating a unique educational experience for each learner and according to his different characteristics (Masadeh et al., 2023).

There are many artificial intelligence tools, and some of the most important tools that can be used to improve distance education are expert systems, which are systems that contain large amounts of information that can be used to solve many complex problems (Abdelmagid et al., 2024). Chatbots are interactive applications that provide assistance to learners and answer all their questions. Other tools can be used for translating hundreds of research and articles in a short time, creating educational content with distinctive interactive elements and sharing it with others, searching databases and information quickly and effectively and giving fairly accurate results, and finally creating tests and providing immediate assessment to the learner (Özbey & Kayri, 2023).

On the other hand, there are several disadvantages of artificial intelligence and distance education. Despite the necessity of paying attention to artificial intelligence and distance education, there is a permanent reliance on these technologies, not balancing direct and electronic teaching methods, and organizing real educational situations away from machines and smart devices, in which the learner is tested and his degree of mastery of what he gained of experience and cognitive skills, as this will inevitably affect the quality of education and the quality of its outcomes, and lead to many problems (Ouyang et al., 2022). Education becomes an experience far from human interaction and real social communication between teachers and learners. Many methods of plagiarism, forgery, and electronic fraud are available as a result of relying on artificial intelligence and distance learning techniques (Fathahillah et al., 2023). There are low levels of academic and scientific output in educational institutions, and there is confinement to developing technical skills away from other cognitive aspects such as analysis, interpretation, and performing calculations without machines. Another disadvantage is the large cost of maintaining equipment and providing the necessary tools for education (Muniasamy & Alasiry, 2020). Relying on AI threatens the scientific reputation of universities and educational institutions as a result of the low level of their educational outcomes, and the low rate of academic integrity and respect for intellectual property rights among their members.

Previous studies

Almaiah et al. (2022) examined how university-level e-learning affects students' social and computer anxiety. Several educational institutions in the Gulf region have begun using online course management systems. Regardless, new research shows that the majority of Gulf university students still avoid using online systems. Understanding the source of this apprehension and how it relates to factors like motivation, satisfaction, and self-efficacy is crucial. Lower levels of anxiety are associated with increased usage of e-learning tools and improved participation in classes via easily available electronic channels. Here, we provide a theoretical framework for future research on the impact of Gulf e-learning settings on students' social and computer anxiety. We analyzed the positive and negative effects of many factors on these two forms of anxiety, including satisfaction, motivation, and self-efficacy.

To help China's higher education institutions overcome the obstacles they encounter while introducing e-learning modules, Fu et al. (2022) proposed an AI-based Efficient E-learning Framework (AI-EELF). An adaptive learning environment may make good use of the data acquired by students. To improve the quality of instruction and to anticipate each student's preferred manner of learning, the AI-EELF approach suggests using several learning models. Experimental findings demonstrate that, in comparison to other approaches already in use, the proposed AI-EELF increases teaching quality while achieving excellent performance in predicting students' learning styles.

Khan et al. (2022) analyzed how Saudi Arabian schools and universities have used AI and big data to improve their online learning platforms, with the hope of providing their students with better educational opportunities. Using a purposive sampling approach, 290 students from various universities made up the sample dataset for this research. Software such as SPSS and SmartPLS 3 were used for data analysis. Despite a continuing epidemic at the university level, this research found that AI and big data helped instructors and students keep the learning process running smoothly. Additionally, it delves into the educational implications of emerging technologies via the lenses of students' "learning and institutions" instruction and adaptation. Recent decades have seen a rise in the use of cutting-edge technology in higher education, which has led many to speculate that artificial intelligence (AI) may soon constitute the backbone of educational institutions throughout the world. The research sheds light on challenges encountered by students and colleges as a whole when attempting to use new technologies for pedagogy, administration, and student assistance.

Li, G. (2023) presented the Hidden Chain Fuzzy Model (HCFM) as a new method for educational learning type prediction. An individual's preferred method of learning, which may be aural, visual, or kinesthetic, is a critical factor in developing engaging lessons and fostering growth in students. To represent the complex interdependencies and linkages present in learning behaviours, the HCFM offers a novel take on conventional fuzzy models. The model's learning process is tested extensively, using a dataset of examples with different aptitudes and preferences, to see how well it can distinguish between different learning methods. To evaluate how well the model works with different types of learners, we use a battery of classification measures including recall, accuracy, precision, F1 Score, area under the curve, and mean squared error. Further evidence of the HCFM's predictive power comes from an examination of specific cases, which shows how well it adapts its predictions to the specific traits of particular students. More flexible and specialized learning environments may be possible thanks to the HCFM, which shows promise as a strong instrument for personalized education. In the latter section of the study, we talk about possible directions for future studies, stressing how important it is to validate the model and see whether it works in other kinds of schools.

Lin et al. (2022) developed an e-learning product model for the propensity to make ongoing use of language-learning platforms powered by artificial intelligence. Empirical research based on the unified theory of technology adoption and usage, together with perceived risk and perceived entertainment aspects, yields findings from the perspective of the consumers. Online learning product customers from China participated in the study. So, to help e-learning solutions that use AI better satisfy consumer desires, we provide some suggestions grounded in theory for how to

enhance their marketing and design. The findings allow us to provide user-centric recommendations for the long-term improvement and enhancement of AI-powered online learning platforms, as well as tactics to assist operators in bridging the gap between user experiences and their demands.

3. Methodology

3.1. Research design

The descriptive method was used, which is concerned with describing phenomena and scientifically observing them to arrive at logical explanations with logical evidence and proof. The descriptive method can be defined as a scientific method based on studying the phenomenon and collecting important and necessary information about it, describing the phenomenon accurately, and providing scientific explanations in a manner consistent with the data.

3.2. Sample

The research was applied to a sample of 94 Jordanian university students. The sample was selected by stratified random method. The following table shows a description of the characteristics of the sample members.

Table 1. Description of the characteristics of the participants

Variable	Category	Number
Gender	Male	49
	Female	45
Specialization	Scientific	59
	Humanities	35
Total		94

3.3. Instrument of the study

The study used a questionnaire as the research instrument to determine the level of the use of artificial intelligence technology and distance education in distorting the contemporary educational landscape. The initial version of the questionnaire included four dimensions, within 40 paragraphs. The validity of the questionnaire was confirmed using content validity by presenting it to a group of experts in the field of curricula, teaching methods, and educational techniques, to determine the suitability of the questionnaire to achieve the goal of the research. The most notable modifications were converting phrases into actual sentences, shortening some items, and separating them into separate items.

Applying the questionnaire to a survey sample of thirty students not included in the study confirmed its internal consistency and validity. Next, we used SPSS to compute the Pearson correlation coefficient between the scores on each questionnaire statement and the total scores on the corresponding dimension. Presented in the table below are the outcomes.

Table 2. The Pearson correlation coefficient for the dimension of the questionnaire

Dimension	correlation coefficient
Electronic fraud	0.85**
Electronic plagiarism	0.87**
Quality of outputs	0.84**
The reputation of universities	0.88**

To ensure the reliability of the questionnaire, the Cronbach alpha coefficient was used for each dimension of the questionnaire and the questionnaire as a whole. The results were as follows.

Table 3. Reliability coefficients of the questionnaire using Cronbach's alpha coefficient

Dimension	Number of items	Cronbach's alpha coefficient
Electronic fraud	10	0.81
Electronic plagiarism	10	0.82
Quality of outputs	10	0.88
The reputation of universities	10	0.93
Total	40	0.92

It is clear from the previous table that the reliability coefficient of the questionnaire as a whole, and the dimensions of the questionnaire using the repetition method are very high, which reassures the researcher of the validity of applying the questionnaire to the study sample.

4. Results and discussion

The first question was answered by extracting the mean scores, standard deviation, and rank of the students' answers to the four dimensions included in the questionnaire, and the results were as follows.

Table 4. The mean scores, standard deviations, ranks, and evaluation of the dimensions of the questionnaire

Dimension	Mean score	Standard deviation	Rank	Level
Electronic fraud	2.24	0.98	2	Low
Electronic plagiarism	2.14	1.03	3	Low
Quality of outputs	2.9	1.11	1	Medium
The reputation of universities	1.66	1.21	4	Very low
Total	2.23	2.33	…	Low

It is clear from the previous table that the role of the incorrect use of artificial intelligence and distance learning technology in distorting the contemporary educational landscape was of a low degree, as the average of students' answers to the questionnaire as a whole was (2.23), with a standard deviation of (2.33), which indicates low evaluation. The results of this low level of incorrect use of artificial intelligence and distance learning technology in distorting the contemporary educational scene can be explained by the universities that use artificial intelligence and distance learning technologies following strict procedures and instructions in this regard, which makes the use of these technologies positive, supports the educational process at the university and helps achieve its goals. The quality of outputs dimension was first in the ranks, which can also be explained by the need for some specializations to have the student physically present to train him and provide him with experience and practical skills in his field

of specialization, and this is what artificial intelligence and distance education techniques lack, which affects the quality of outputs. The reputation of universities ranked last, which may be because employing artificial intelligence technology and distance learning does not cause any violation of integrity or honesty in the educational process that takes place in universities, especially after applying clear controls that prevent any fraud or manipulation in the educational process and maintains the scientific reputation of universities.

The results showed that universities try to limit the incorrect use of AI applications among students by using specific detection tools. These steps are important in preserving the reputation of the universities and the quality of the educational outputs. The students agreed on the inconvenience of using AI incorrectly and showed the importance of observation from university professors and administrators.

To answer the second question of this study, a T-test was used for two independent groups (using the SPSS program), to verify the significance of the differences between the averages of students' answers about the reality of using artificial intelligence applications and distance learning in the contemporary educational process according to the variables of gender and specialization. The results were as follows.

Table 5. T-test results of students' answers about the reality of using artificial intelligence applications and distance education according to the variables gender and specialization

Variable	Categories	NO.	Mean score	Standard deviation	Freedom Value	T value	Sig.	level
Gender	Male	49	15.65	3.61	82	1.12	0.53	Not sig.
	Female	45	15.12	4.12				
Specialization	Scientific	59	14.89	5.32	82	2.31	0.08	Not sig.
	Humanities	35	15.61	2.85				

Concerning the gender variable, it turns out that the value of the function (t) = (1.12), and the value of the statistical function (sig) = (0.53), which is greater than the significance level (0.05). This means that there are no statistically significant differences between the averages of students' answers about the reality of using applications of artificial intelligence and distance education in the contemporary educational process according to the gender variable. Concerning the specialization variable, it turns out that the value of the function (t) = (2.31), and the value of the statistical function (sig) = (0.08), which is greater than the significance level (0.05). This means that there are no statistically significant differences between the averages of students' answers about the reality of using applications of artificial intelligence and distance education in the contemporary educational process according to the variable of specialization.

The researcher explains that there are differences between the averages of students' answers about the reality of using artificial intelligence applications and distance education in the contemporary educational process depending on the variable type of university in favour of virtual university students due to the foundation of the virtual university system on distance learning technologies and devices and the absolute reliance on these technologies in the educational process, unlike traditional universities in which the use of these technologies depends on the efforts of the teaching and administrative staff and their diligence. The results showed the absence of differences between the averages of students' answers about the reality

of using artificial intelligence applications and distance learning in the contemporary educational process according to the gender variable, which can also be explained by the fact that male and female students are in the traditional university. The students in the virtual university have the same university educational system, go through the same experiences, and use the same tools, which made their answers close on this topic. It can also be explained that there are no differences between the averages of the students' answers about the reality of using artificial intelligence applications and distance learning in the process. Contemporary education, according to the specialization variable, indicates that students with theoretical and applied specializations in the virtual university follow the system of the university in which they registered and use the tools and techniques imposed by this university. The same applies to students with theoretical and applied specializations in the traditional university, which made their answers similar on this topic.

5. Conclusion

The objective of this study was to explore the level of using artificial intelligence applications among university students and their impact on the credibility of e-learning. The results revealed variation in the responses between the students who participated in this study. However, students agreed on the low level of the incorrect use of AI applications among them and their colleagues. The students showed that their universities have strict rules and regulations regarding the use of AI tools in their studies. Therefore, there were low estimations from the students on the large incorrect usage of AI tools. The results also revealed that gender and the specialization of the student do not affect their views toward the incorrect use of AI tools in their education, whether face-to-face education or online education. the study showed the importance of using AI applications in education with limitations and regulations from the universities and professors.

6. Recommendations

The study recommends the necessity of setting strict laws by universities and educational institutions regarding the use of artificial intelligence technologies in education and imposing disciplinary penalties for anyone who exceeds the permissible limits. Special centres for distance learning can be established in all countries of the world, in which the learner visits the centre and undergoes a practical evaluation on the ground in the educational field he is studying, to ensure his scientific and academic competence, and that this evaluation be a condition for his graduation from the university. The study also recommends forming a scientific committee specializing in detecting electronic abuse, electronic fraud, and scientific theft using artificial intelligence tools. Technical laboratories equipped with distance education and artificial intelligence tools should be opened in traditional universities, and learners should be trained to use them within the permissible limits. Teaching staff members and university students should be trained to use these techniques instead of receiving them randomly.

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